Space Weather Forecast

Issued on Wednesday, 21 February 2024 at 01:21 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Ongoing chance of Moderate activity.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low, with the main source of Common-class flares from the large region in the northeast quadrant. This is one of four regions, with the remaining regions all weak and simple, with no notable evolution. A further region, just beyond the western limb, could still produce significant flares.

No Earth-directed CMEs have been observed in the last 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds were ambient throughout. Total magnetic field strength gradually increased from weak to moderate levels through the period, most likely in response to a weak glancing CME passage which has perturbed the Earth's magnetic field. The north-south component was generally weakly negative, but rotated to a positive orientation towards the end of the period. Geomagnetic activity was mainly Quiet, with one Unsettled interval at the end of the period.

Energetic Particles / Solar Radiation: Solar radiation was just above resting background levels but on a slowly declining trend.

Four-Day Space Weather Forecast Summary
Solar Activity: Low activity is forecast, but with a risk of Moderate activity from the large region in the northeast quadrant and a decreasing risk from a region which is now just beyond the western limb.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are forecast. Solar wind speeds are forecast to remain at ambient levels, but may reach between 400-500km/s due to the forecast onset of a fast solar wind. Geomagnetic activity is forecast to be mainly Quiet to Unsettled, with a slight chance of Active intervals due to the onset of the high speed stream on 24 February.

Energetic Particles / Solar Radiation: Solar radiation levels will continue to gradually ease to resting background, risk of further enhancement until around 22 February mainly from the sunspot group just over the limb.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	35	35	35	35
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	2	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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